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**AIHW Dental Statistics and Research Unit Research Report No. 14**

# Oral Health of Aboriginal and Torres Strait Islander Persons

THE UNIVERSITY OF ADELAIDE AUSTRALIA

ARCPOH
Australian Research Centre for POPULATION ORAL HEALTH

**This research report provides information on the oral health of Aboriginal children and adults in 1999–2001. Data were collected from a number of different sources, including two remote communities, a metropolitan Aboriginal clinic, and public dental services in metropolitan and regional areas. These data have been compared with earlier data to give an indication of trends in oral health of Aboriginal and Torres Strait Islander persons.**

## Data collection

Oral health data for children were collected electronically through the South Australian Child Dental Health Survey in 2001. These data were collected on all children in South Australia (SA) who used the School Dental Service in a six-month period and included 900 Aboriginal children. Child data from remote communities were collected in 1999–2000 (n=412) in SA.

Oral health data for adults were collected in 1999–2000 in association with treatment provision in one SA metropolitan (n=147) and two remote Aboriginal dental clinics (n=534). Aboriginal data collected through public dental services (PDS) in SA and New South Wales (NSW) were also included (n=243). Data collected on optical mark reader forms were scanned and analysed. These data may not be representative of Aboriginal persons in Australia and should be regarded as indicative only.

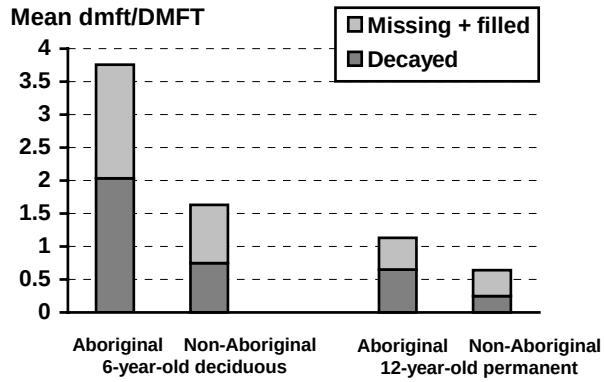
## Child oral health

Caries experience (dental decay) in permanent teeth is measured by the mean number of teeth with untreated decay (DT), missing (MT) and filled (FT), and in the deciduous dentition dt, mt and ft. At the tooth surface level DS, MS and FS, and ds, ms and fs are used.

Caries experience among South Australian Aboriginal children is higher than for non-Aboriginal children in both the deciduous and permanent dentitions. The proportion of that experience which is untreated is also greater (Figure 1).

These comparisons are similar to those for the Northern Territory for 1999 (DSRU, 2002).

**Figure 1: Child caries experience Aboriginal and non-Aboriginal, South Australia (2001)**




Source: CDHS – SA data

Work done by Bourke in 1991 in South Australia suggests that caries rates among Aboriginal children differ by geographic location (Table 1). Geographic differences are also apparent between metropolitan, non-metropolitan and remote areas in the proportion of caries experience which is untreated (ds).

**Table 1: Caries experience in deciduous dentition – age- and sex-standardised means by area, 1991, 5–10-year-olds**

| | Decayed surfaces (ds) | Missing surfaces (ms) | Filled surfaces (fs) | Deciduous caries experience (dmfs) |
|---|---|---|---|---|
| **Metro** | 1.83 | 0.34 | 3.02 | 5.19 |
| **Non-metro** | 2.61 | 1.72 | 3.55 | 7.88 |
| **Remote** | 1.04 | 0.68 | 0.18 | 1.90 |

Source: Bourke et al. 1999

A similar pattern by location is apparent in the permanent dentition (Table 2). There is a very low level of caries experience in remote areas; metropolitan and non-metropolitan areas are more comparable, with the metropolitan areas having slightly higher caries experience.

**Table 2: Caries experience in permanent dentition – age- and sex-standardised means by area, 1991, 5–14-year-olds**

| | Decayed surfaces (DS) | Missing surfaces (MS) | Filled surfaces (FS) | Permanent caries experience (DMFS) |
|---|---|---|---|---|
| **Metro** | 0.40 | 0.00 | 0.93 | 1.33 |
| **Non-metro** | 0.27 | 0.10 | 0.84 | 1.22 |
| **Remote** | 0.22 | 0.00 | 0.08 | 0.30 |

Source: Bourke et al. 1999

In Table 3 data from 1991 are compared with 2000 data for remote and metropolitan areas. In remote areas the caries experience among Aboriginal children has more than doubled. Among metropolitan Aboriginal and Torres Strait Islander children caries experience has declined slightly since 1991.

**Table 3: Caries experience changes since 1991**

| 5–10-year-olds | 1991 | 2000 | Change dmfs |
|---|---|---|---|
| Remote | 1.90 | 4.23 | 2.33 |
| Metrotropolitan | 5.19 | 4.55 | -0.64 |
| **5–14-year-olds** | | | **Change DMFS** |
| Remote | 0.30 | 0.94 | 0.64 |
| Metropolitan | 1.33 | 0.83 | -0.50 |

Sources: Bourke et al. 1999, DSRU unpublished

## Adult oral health

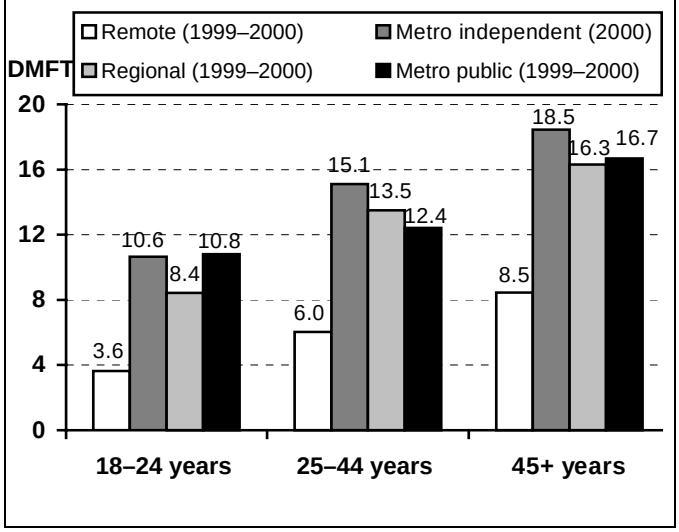
### Edentulism

Complete loss of all natural teeth (edentulism) is an adverse outcome of the cumulative effects of oral disease and treatment. Previous research reports noted a higher percentage of Aboriginal and Torres Strait Islander persons with no natural teeth (16.3%) than among non-Aboriginal persons (10.2%) (AIHW DSRU, 2000). One remote community, which had no edentulous persons in 1987, has 10 in 2000, all of whom are diabetics.

### Caries experience

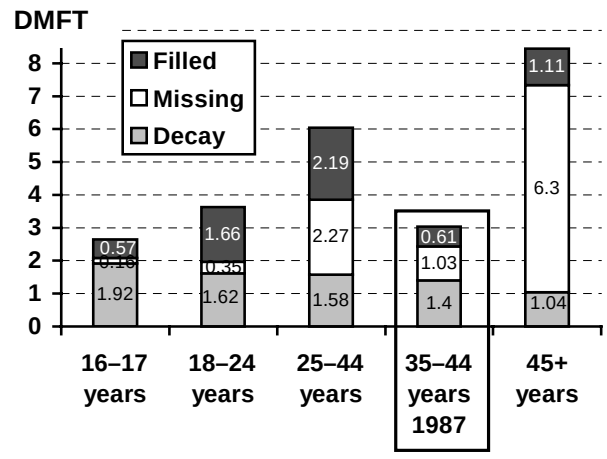
Figure 2 compares the caries experience of Aboriginals from a couple of remote communities in 2000 with those from an independent metropolitan Aboriginal clinic and Indigenous persons using public dental services in metropolitan and regional areas. Remote Aboriginal persons had the lowest levels of caries experience in all age groups, whereas metropolitan Aboriginal and Torres Strait Islanders had the highest.

**Figure 2: Caries experience (mean DMFT) by location**




However, there seems to be some evidence that caries rates in adults are increasing in the remote communities. Figure 3 shows the components of caries experience by age group from a remote community and a comparison with 1987 data from the same area. Caries experience in the middle adult group has doubled in the 12-year period; the number of missing teeth has increased two-fold and the number of filled teeth more than three-fold. Untreated dental decay predominates in the youngest age group, but proportionally declines across the age groups. The number of missing teeth increases from a mean of 0.16 in the 16–17-year age group to a mean of 6.3 in the 45+-year group.

**Figure 3: Remote caries experience including comparison (1999–2000) with 1988 data**

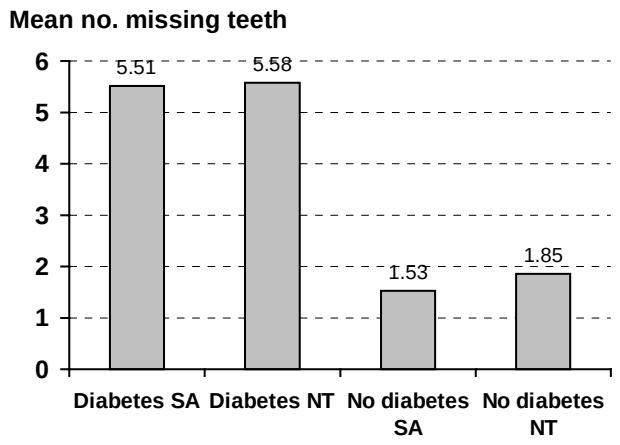



Source: DSRU unpublished data, Simmons et al. 1988

Non-insulin-dependent diabetes is commonly experienced by Aboriginal persons and has been related to oral health (Taylor et al., 1996). Figure 4 shows the number of missing teeth in two remote communities by diabetic status. Among dentate

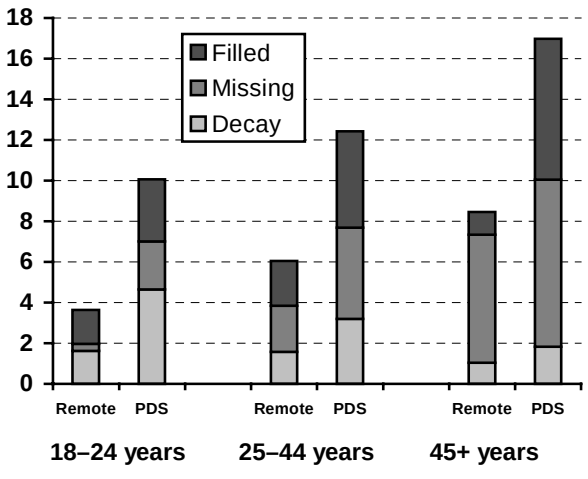
persons in both remote communities, diabetic persons have over three times the number of missing teeth than those without diabetes.

**Figure 4: Missing teeth in dentate persons by diabetic status in remote communities in South Australia (SA) and the Northern Territory (NT) 1999–2000**




The distribution of components of caries experience by age group and by location is shown in Figure 5. The pattern of caries experience in remote areas is compared to that seen in the public dental services (PDS). The filled teeth component of the caries experience is lower among remote persons in all age groups. Untreated decay is the majority of the decay experience in the 18–24-year-old group but decreases across the age groups. Missing teeth is the predominant component in the oldest age group in both remote areas and PDS; however, in remote areas missing teeth comprise almost 75% of caries experience.

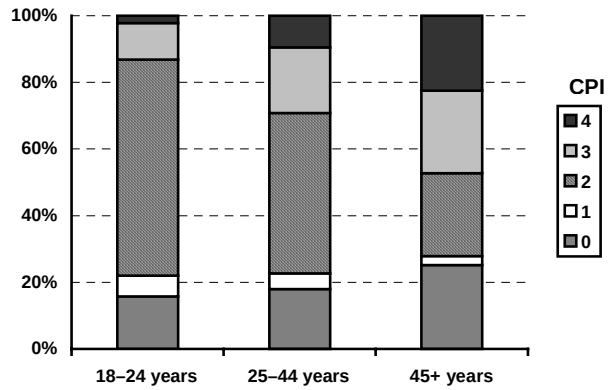
**Figure 5: Components of caries experience by age group and location**




## Periodontal health

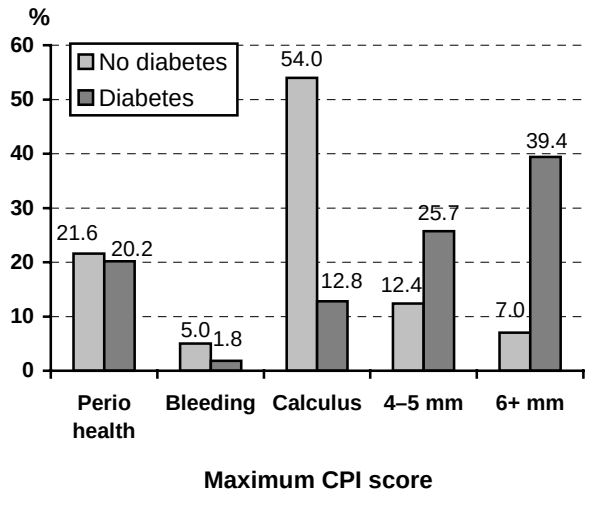
Community Periodontal Index (CPI) is a World Health Organization measure of periodontal health: 0 indicating periodontal health, 1 – gingival bleeding, 2 – presence of calculus (tartar), 3 – pocket depth of 4–5 mm and 4 – pocket depth of 6+ mm. Figure 6 shows the percentage of Aboriginal persons in each age group by maximum CPI score. In all age groups less than 45+ years, the presence of calculus was the most common periodontal condition. In the 45+ age group 23% had deep pockets and 25% had moderate pockets.

**Figure 6: Maximum CPI by age group (n=732) (2000)**




The link between periodontal disease and diabetes is well established in the literature. In these data, the percentage of diabetics is 10.9% in the 25–44-year age group and 50.6% in the 45+ age group. The distribution of maximum CPI scores shows marked differences between those with diabetes and those without (Figure 7).

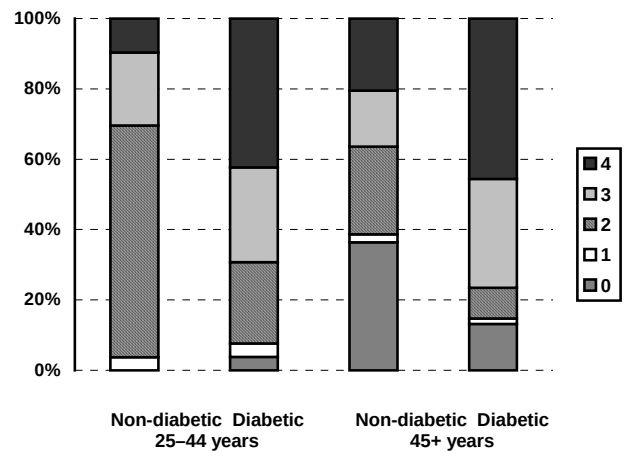
**Figure 7: CPI by diabetic status (n=480) (2000)**



Among non-diabetics, a score of 2, indicating the presence of calculus, is the most common score. However, among diabetics the most frequent CPI score is 4, indicating pockets of 6 mm+.

Figure 8 compares the maximum CPI score by age group and diabetic status. More persons with diabetes (over 60%) had moderate and severe pocketing than non-diabetics (less than 40%) in both age groups.

**Figure 8: CPI by age group and diabetic status (2000)**




## Limitations of data

All the data presented in this report have been obtained from persons seeking dental services and are therefore not representative of all Aboriginal and Torres Strait Islander people. This non-representativeness is further compounded by the limited sources of data.

## Acknowledgements

This research was assisted by the Population Health Division of the Commonwealth Department of Health and Ageing.

We acknowledge those dentists and members of Aboriginal communities who willingly assisted in data collection.

## Conclusions

Aboriginal and Torres Strait Islander children have more than twice the caries rates of non-Indigenous children in the deciduous dentition.

Dental caries in the permanent dentition among 12-year-old Indigenous children is almost twice that of non-Indigenous children.

Dental caries rates in Indigenous children seem to be increasing.

There are marked differences in dental caries experience by location among Aboriginal and Torres Strait Islander people, with lower levels in remote areas, although in remote areas, caries rates appear to be increasing.

The number of missing teeth and the prevalence of moderate and severe periodontal pocketing are higher among diabetics than non-diabetic Aboriginal adults.

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